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L. E. DICKSON: "Representations of the general symmetric group as linear groups in finite and infinite fields."

L. P. EISENHART: "Surfaces with isothermal representation of their lines of curvature and their transformations."

J. L. COOLIDGE: "The equilateral transformations of space."

A. RANUM: "Concerning linear substitutions of finite period with rational coefficients."

R. B. ALLEN: "On hypercomplex number systems belonging to an arbitrary domain of rationality."

G. D. BIRKHOFF: "On the asymptotic character of the solutions of certain linear differential equations containing a parameter."

G. A. MILLER: "On the holomorph of the cyclic group of order p^m ."

E. B. VAN VLECK: "On non-measurable sets of points, with an example."

THE April number (volume 14, number 7) of the *Bulletin of the American Mathematical Society* contains the following papers: "Subjective Geometry," by G. W. Hill; "On Higher Congruences and Modular Invariants," by L. E. Dickson; "Note on Jacobi's Equation in the Calculus of Variations," by Max Mason; "On the Distance from a Point to a Surface," by E. R. Hedrick; "A Geometric Representation of the Galois Field," by L. I. Neikirk; "Concerning the Degree of an Irreducible Linear Homogeneous Group," by W. B. Fite; "On the Lorentzian Transformation and the Radiation from a Moving Electron," by F. R. Sharpe; "Shorter Notices" (Walker's On the Resolution of Higher Singularities of Algebraic Curves into Ordinary Nodes, by H. S. White; K. Bopp's Die Kegelschnitte des Gregorius a St. Vincentio in vergleichender Bearbeitung, by F. Cajori; Annuaire du Bureau des Longitudes pour L'An 1908, by E. W. Brown; Kuenen's Die Zustandsgleichung der Gase und Flüssigkeiten und die Kontinuitätstheorie, by E. B. Wilson); "Notes"; "New Publications."

The May number of the *Bulletin* contains: Report of the February Meeting of the American Mathematical Society, by F. N. Cole; Report of the February meeting of the San Francisco Section, by W. A. Manning; "A Fundamental Invariant of the Discontinuous

ζ -Groups Defined by the Normal Curves of Order n in a Space of n Dimensions," by J. W. Young; "On Certain Constants Analogous to Fourier's Constants," by C. N. Moore; "Note on the Second Variation in an Isoperimetric Problem," by E. Swift; "Note on a Certain Equation Involving the Function $E(x)$," by R. D. Carmichael; "The Inner Force of a Moving Electron," by F. R. Sharpe; "The Recently Discovered Manuscript of Archimedes," by C. S. Slichter; "Shorter Notices" (P. H. Schoute's Mehrdimensionale Geometrie, II. Teil, Die Polytope, by W. B. Carver; Field's Theory of the Algebraic Functions of a Complex Variable, by J. I. Hutchinson); "Notes"; "New Publications."

SOCIETIES AND ACADEMIES

BOSTON SOCIETY OF MEDICAL SCIENCES

A MEETING was held at the Harvard Medical School on March 17, Professor H. C. Ernst presiding. The following papers were presented:

A Note on a New Thermochemical Method: Dr. L. J. HENDERSON and C. T. RYDER.

By introducing a reaction mixture into a Dewar flask which is immersed in a very accurately regulated water thermostat, it is possible to obtain very accurate measurements of heats of reaction of slowly progressing reactions. It has been found that in such a system Newton's law holds very accurately, and that the correction thus involved, with proper manipulation, is very small.

A Series of Ninety-one Blood-cultures: Dr. LAWRENCE J. RHEA.

An Intracanalicular Papillary Adeno-fibroma from the Groin, with lantern illustrations: Mr. E. L. YOUNG.

The Theory of Neutrality Regulation in the Animal Organism: Dr. L. J. HENDERSON.

By analysis of the equilibrium between the four substances carbonic acid, sodium bicarbonate, mono-sodium phosphate and di-sodium phosphate, with the aid of the concentration law, it may be shown that previous findings concerning the constitution of such systems are in accord with the theory. Curves have

been constructed which define the equilibrium at 18°, and very accurately at 38°. These studies prove that such systems possess nearly the highest efficiency which can occur in isolated aqueous solutions for the preservation of neutrality. By the intervention of vehicles of escape for some of the above substances, the efficiency of these systems in the body is so far magnified that they far surpass the efficiency of any possible closed aqueous solutions of like concentration in preserving a hydrogen ion concentration near $0.3 \times 10^{-7}N$. It is shown theoretically and experimentally that the alkalinity of blood probably varies materially with the temperature, so that the alkalinity of blood in the body is probably three times as great as it has been believed to be. Moreover the increase in alkalinity in high fever is probably not insignificant.

C. L. ALSBERG,
Secretary

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 443d meeting was held April 4, 1908, with Vice-President Hay in the chair. Dr. L. O. Howard exhibited a photograph showing a greatly enlarged female of *Diaspis pentagona* containing a forming imago of *Prospalta berlesei* How., and stated that he had just received this photograph from Professor Berlese. The *Diaspis* is a dangerous enemy to mulberry in south Europe, and the *Prospalta* was imported from America in the hope that it would establish itself in Italy. The photograph indicates that the parasite is breeding in Italy and encourages hope.

Dr. Barton W. Evermann commented briefly on the successful outcome of the attempt made by the Bureau of Fisheries to inoculate fishes with the glochidia of fresh-water mussels, as a stage in the propagation of the latter. The experiments, conducted by Doctors Lefevre and Curtis, of the University of Missouri, were made last fall at La Crosse, Wis., with more than 25,000 fish of various species, and gravid mussels, furnished by Professor U. O. Cox from the Wabash River at Terre Haute, Ind. The young, when ready to be set free from the mussels, were placed in the same water with the fish, which were

soon found to have many of the young attached to their gills, fins or other parts, some of the fish bearing several hundred. They remained attached until March, when, as they began to release themselves, the fish were planted in the Mississippi River.

Doctors Lefevre and Curtis have been experimenting for some time under the auspices of the Bureau of Fisheries for the purpose of developing a method of artificially propagating fresh-water mussels on a commercial scale and in the interests of the pearl-bottom industry which has recently grown to enormous importance in this country. They are greatly pleased with the results.

The first paper, by Mr. C. L. Marlatt, was on the subject of "The White Fly Problem in Florida." It was illustrated by numerous lantern slides representing the life history of the insect and means of control, particularly by fumigation.

The systematic position and general characteristics of the white fly (*Aleyrodes citri*) were discussed in connection with a general account of the family Aleyrodidae. The white fly first appeared in this country in the orange section of Manatee County, Florida, and was present there a great many years before it was scientifically studied and named. It is supposed to be of Chinese origin, but this origin has not been fully established. From the point of its first appearance in Manatee County it has spread throughout Florida and along the Gulf coast into Texas. It may occur in any northern greenhouse, principally on citrus plants, and seems to be able to maintain itself out of doors as far north as Georgia and perhaps South Carolina. The orange growers of California have long feared it and have made a strong effort to keep it out of the state. These efforts were long successful, but in May of 1907 it was found to be well established in north-central California at Marysville, and a little later at Oroville, and still farther south and much closer to the main orange section at a single point near Bakersfield. The strenuous efforts undertaken by the state of California to stamp out these points of infestation were described.

In Florida it is the principal orange pest, and puts a very heavy tax on all citrus products in that state. Its damage comes not only from its direct effect on the tree, but also from the sooty mold which follows its presence and spreads over the upper surface of the leaves and discolours the fruit. An account was given of the work done against this insect, beginning with its first description by Riley and Howard in 1893, the subsequent investigation of it in Florida from the standpoint of the sooty mold by Webber and Swingle in the early 90's, and the later work under the auspices of the Bureau of Entomology now in progress. The characteristics and action of the sooty mold (*Melolia camelliae*) which lives in the honeydew secreted by this and other allied insects, were described. A snail was illustrated which, during the last few years, has, in a few groves in Manatee County, been apparently a very efficient aid in removing the sooty mold, on which it feeds.

The natural enemies and means of control of the white fly were discussed. No true insect parasites of the white fly are known. Other species of white flies have many parasites, but so far none of these have paid any attention to *Aleyrodes citri*. The principal natural means of control are some four parasitic fungi, comprising two species of *Aschersonia*, known respectively as the yellow white-fly fungus and the red white-fly fungus; one species of *Microcera*, and an undescribed fungus known as the brown fungus. Under favorable conditions these fungi give the groves one clean year in three, with some protection during the other two years. An account of these fungi was given, together with an account of the action of secondary or hyperparasitic fungi. The means of artificially encouraging and disseminating the parasitic fungi were also described.

By means of lantern slides the process of fumigation of orange trees for the white fly during the hibernating period in winter was fully illustrated.

The next paper was by Dr. W. C. Kendall in the form of "Notes on Sebago Lake, Maine." He said that there are nearly 2,000

lakes in the state of Maine, each over 20 acres in extent, of which Sebago Lake is the next to the largest, having an area of approximately 50 square miles, with a greatest depth of 310 feet at the normal level of the lake above the sea.

Biologically the lake is of particular interest, since it is one of the four bodies of water in the state in which the land-locked salmon was indigenous and in which this fish attains the largest size. He stated that two salmon were taken in the State Fish Commission weirs last fall weighing respectively 31½ and 35½ pounds.

The various views of the past and present regarding the place of this fish in classification were mentioned; also the various theories regarding the reason of its occurrence in fresh water, the speaker favoring the view that it was derived from the migratory or sea salmon and that it is a distinct species.

About fifty pictures were shown on the screen, illustrating the conditions about the lake and its outlet, the Presumpscot River, and some of natural history objects. Of particular interest was one showing honeycomb, but without any contents whatever, attached to a bush with no protection from the weather. It was attached to the twigs of the bush about four feet from the ground. When first found, late in October, there were 50 or 75 living bees on the comb, but before it could be photographed a heavy cold rain destroyed the bees.

In the discussion of this honeycomb, members differed as to whether the pieces had been thrown into the bushes by bee hunters, and afterward attached to the twigs by bees which later took out the honey, or whether it had been originally built in the position in which it was found.

M. C. MARSH,
Recording Secretary

THE TORREY BOTANICAL CLUB

THE meeting for February 11, 1908, was held at the American Museum of Natural History and was called to order by President Rusby at 8:10 p.m. Sixty-five persons were present.

The scientific program of the evening consisted of an illustrated lecture by Dr. A. J.

Grout under the title "A Botanist's Vacation in North Carolina." The lecture was of a semi-popular character and the numerous lantern-slides from photographs taken by the speaker illustrated the scenery and fauna as well as the flora of the mountains of western North Carolina. The speaker's abstract follows:

Seven weeks of last summer's vacation were passed in the "Pink Beds" on the estate of Geo. W. Vanderbilt about forty miles west of Asheville and twelve miles from Brevard. Our visit was made possible and profitable through the assistant director of the Biltmore Forest School, Dr. Clifton D. Howe. The Pink Beds is a mountain valley over 3,000 feet above sea-level and derives its name from the color given to the whole valley in spring by the innumerable blossoms of *Azalea*, *Rhododendron* and *Kalmia*. The climate is cool, like that of Vermont and New Hampshire, but the almost daily thunderstorms, often almost torrential in character, are an inconvenience to the botanist. The fauna as well as the flora is an interesting mixture of northern and southern forms. Many of the forms which at first seem identical with northern species on closer examination are found to have good varietal or even specific differences. The chipmunk, for instance, is undoubtedly a chipmunk but so dark in color as to be scarcely recognizable when first seen. Of our familiar northern flowers, the daisy, evening-primrose, trailing arbutus, Indian pipe, *Clintonia borealis*, two species of *Trillium*, bluets, Indian turnip and many others are common; of the shrubs, witch-hazel, *Kalmia*, *Rhododendron maximum*, the pink, and the white, azalea are noticeable; of the trees, the chestnut, several species of oak, hickory, a few sugar maples, a few white and pitch pines, some ash, and the sassafras, all seem to give the country a familiar look. But on the other hand two additional species of *Rhododendron*, the flame-colored *Azalea*, chinquapin, the great number of tulip-trees and magnolias, the *Nyssa*, *Oxydendron*, Carolina hemlock and other unfamiliar trees, the open forest filled with innumerable unfamiliar

flowers or unfamiliar species of familiar genera, such as *Phlox*, *Lilium*, *Listera*, *Habenaria*, etc., emphasizes the difference in one's latitude and keep one's interest awake.

Miss Gertrude S. Burlingham found about the same number of species of *Lactaria* in Vermont and in North Carolina, *i. e.*, 30-35, and about half of this number were common to both.

About 130 species of mosses were collected; of these about 100 are found in Vermont, but many of these 100 differ appreciably from northern forms.

Hookeria Sullivantii, *Entodon Sullivantii*, *Raphidostigium Novæ-Cesareæ*, *Pylaisia subdenticulata*, *Campylopus introflexus*, *Campylostelium saxicola*, and three species of *Zygodon* were some of the interesting species collected. The moss flora was found to be essentially like that recorded by Mrs. Britton from southwest Virginia, but fifteen to twenty species that she did not find were collected and several common northern forms which she recorded were not met with. The absence of *Polytrichum commune* and *Harpidium* and the abundance of *Entodon*, *Thuidium* and *Fissidens subbasilans* were very notable.

The open pasture-like mountain summits covered with herbs and some low trees contrasted strongly with the rocky barren ridges of the northern Appalachians, and spruces and firs (*Abies Fraseri*) hardly appear under 5,000 feet altitude.

MARSHALL A. HOWE,
Secretary pro tem.

DISCUSSION AND CORRESPONDENCE

THE STATUS OF THE JAPANESE SOFT-SHELLED TURTLE

IN my "Herpetology of Japan"¹ I raised the question whether the Japanese soft-shelled turtle had been properly united with *Amyda sinensis*. The question had not previously been discussed in any detail by competent authority and based upon adequate material. As the specimens at my command seemed to indicate that these turtles in China and Japan have split up into forms corresponding to the

¹ Bull. 58, U. S. Nat. Mus., 1907, pp. 515-519.